



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

5/24/201
D6104-005
Job Sheet 184653



Part No: D6104-005

Job Qty: 60 ea

Part Name: Round Billet, 17-4



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/15/18

Job Tracking No:

Due Date: 10/31/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV B

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	60 pcs		10/31/18	0.00	0.00	Purchasing		AT 18/11/02
110	Packaging	60 pcs		10/31/18	0.00	0.00	Packaging2		AT 18/11/02
120	QC	60 pcs		10/31/18	0.00	0.00	QC18		AT 18/11/02
130	Packaging	60 pcs		10/31/18	0.00	0.00	Packaging3-2		AT 18/11/06
140	QC21-SA	60 Ea		10/31/18	0.00	0.00	QC21		DAS 21 NOV 06 2018

Part Op 100 - Issue P/O: 41376 b) Ø4.00" x 5.10" long d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)
Descriptions: 110 - Ensure material certification is attached

120 - Ensure Material certification comply to Dwg D6104

130 - LOCATION: MAT043

OCT 18 2018

DAS
13
9-89

X60

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6104-005P	17-4 SS Roundbar 4.00"Od	60 pcs (1 ea)	100-Purchasing	5124180

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6104-005P	60	0	0

Part Specifications

Specifications could not be found.

Plex 10/15/18 2:40 PM Dart.lajeunesse.marie

DART
AEROSPACE
DAS-89

P/N: D6104-005

REV: B

DAS
61
9-89

W/O: 5124201

INSP/DATE: NOV 05 2018

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

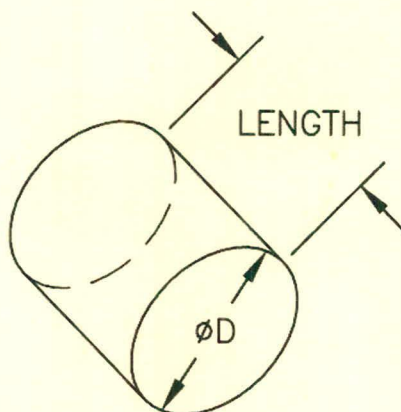
Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐ Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

DART

DESIGN <i>RT</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED02.11.29 *[Signature]*

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041376**

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO041376

PO Date: 10/18/18

Due Date: 11/12/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

E-MAILED
OCT 19 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items												
Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	184848	D6101-005P		7075-T7351 8.25X5.0X2.5 : Various STC's AS PER DWG.D6101 REV.B SIZE: 5.00" X 8.250" X 2.50" THICK GRAIN DIRECTION ALONG 5.00" LENGHT MATERIAL: 7075- T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"	Firmed	-	11/12/18	14 pcs	0 pcs	14 pcs	\$40.54/pcs	\$567.56
2		D6102-013P		6061-T6 7.0X6.5X2.0 : Various STC's AS PER DWG D6102 REV. D SIZE: 6.5" LENGHT X 7.0" WIDTH X 2.0" THICK GRAIN DIRECTION ALONG 6.5" LENGHT	Firmed	-	11/12/18	70 pcs	0 pcs	70 pcs	\$31.65/pcs	\$2,215.50
3 M	184653	D6104-005P		17-4 SS Roundbar 4.00"Od : Various STC's AS PER DWG D6104 REV. B MATERIAL: 17-4 PH AS PER AMS 4643 OR AISI 630 SIZE: 4.00" X 5.10" LONG	Firmed	-	11/12/18	60 pcs 60x	0 pcs	60 pcs	\$54.20/pcs M 18/11/02	\$3,252.00
Grand Total:											\$6,035.06	

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3742123

Ship From:		Sold To:		Ship To:		Deliver To:	
A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped	F.O.B.	Freight Terms		Carrier		BOL No	
30-OCT-18	ORIGIN	Prepaid		MANITOULIN		3742123-2	

Shipment Details	Final Destination Branch - TOR
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Order No	Line No	Item No	Description	
5293610	1	42464.MO	4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643	
Purchase Order No		Part Number	Ordered Qty	Invoice Qty
41376		YOUR ITEM NUMBER: D6104-005	60.00 PCS	60.00 PCS

Details	ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS
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Delivery No. 122308357	Mill/Source NORTH AMERICAN STAINLESS	Heat Number 	Mech Id	PCS 60	Width (IN)	Length (IN)	Shipped Qty(LBS) 1123.7441
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We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

26646685



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

Reviewed by Authorized Castle Metals Representative:

Date:

Name:

OCT 30 2018

SUE KALOUS





**NORTH AMERICAN
STAINLESS**

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 438670 06

Mail To:

A.M. CASTLE AND COMPANY
1420 KENSINGTON ROAD-SUITE 220
OAK BROOK IL 60523

Ship To:

A.M. CASTLE AND COMPANY
1625 TILLIE LEWIS DRIVE
STOCKTON CA 95206

Date: 8/20/2018 Page: 1 Of 1

Steel: 630 (17-4)

Finish: Hot Finish

Dia/Thk: 4.0000 in

Leg Length:

Length: 144.00 in

Corrosion:

Customer: 0032 014

NAS Order: LP 89877 1

Red Ratio: 4.7 :1

Heat Treat Code: 48,311

Your Order: 474418-1

Item Code: 42464

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/18, MACRO OK, AMS 5643/V
ASTM A564/13e1, AMS 2303/F, ASME SA564/13, ASTM F899/12B
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. AND AIR COOLED TO RT
UT PER API6A PSL3, ASTM A388/S1 CRITERIA, UT PASSED
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

CASTLE METALS STO

879N

HEAT NUMBER

MECHANICAL ID

ITEM CODE: 42464

LOT NUMBER

PURCHASE ORDER

SUPPLIER: NAS

SPECIFICATION/CS

COMPLIANCE

APPROVED DATE

Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight
BJ73542	1522	BJ73754	1540						

ANAB, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/14a

NAS Heat	Supplier Heat	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %	P %
879N		US	.021	.237	.06	15.14	3.37	.77	.024	.022	4.25	.024
			S %	SI %	TA %	TI %						
			.0125	.62	.0050	.0020						

MECHANICAL PROPERTIES

	l d o i c r	HB No.	Grain No.	Ferrite %	TS-900CAP KSI	YS-900CAP KSI	EL-900CAP % 4D	RA-900CAP %	RC-900CAP No.	FREQ. No.	SEV. No.
BJ73542	R L	341.0	7.0	.16	199.66	172.18	10.35	40.37	42.0	.29	.15
BJ73754	R L	341.0	7.0	.16	199.66	172.18	10.35	40.37	42.0	.29	.15

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS

Technical
Dept. Mgr.

KRIS LARK

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6104-005
 DATE: 18/11/02

PO / BATCH NO.: P0041376/S124201

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 60 x
 QUANTITY INSPECTED: 60x
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 4.00"
 THICKNESS RECEIVED: 4.00"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒ N	
CORRECT FINISH	☒ Y	N	
CORROSION	Y	☒ N	
CORRECT GRAIN DIRECTION	☒ Y	N	
CORRECT MATERIAL PER M-DRAWING	☒ Y	N	<u>DAMS 5643</u>
CORRECT THICKNESS	☒ Y	N	
PHOTO REQUIRED	Y	☒ N	
CORRECT REF # TO LINK CERT	☒ Y	N	<u>HTC 879N</u>
CORRECT MATERIAL IDENTIFICATION	☒ Y	N	
CORRECT M# ON THE MATERIAL	☒ Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AK</u> DATE: <u>18/11/01</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

